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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/437,265	11-10-1999	TOSHIHIKO NAKATA	501.37854X00	7750

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EXAMINER

LEE, SHUN K

ART UNIT PAPER NUMBER

2878

DATE MAILED: 02/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/437,265

Applicant(s)

NAKATA ET AL.

Examiner

Shun Lee

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 18 December 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 7-10 and 17-19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-6, 11-16 and 20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on 14 December 1999 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Election/Restrictions

1. It should be noted that claim 20 depends from claim 1 and thus claim 20 is readable on the species of detecting geometrical information with ultraviolet light having a wavelength of 300 nm or less. Applicant's election with traverse of species of detecting geometrical information with ultraviolet light having a wavelength of 300 nm or less (claims 1-6, 11-16, and 20) in Paper No. 9 is acknowledged. The traversal is on the ground(s) that the species are related. This is not found persuasive because where two or more related inventions are being claimed, the principal question to be determined in connection with a requirement to restrict is whether or not the inventions as claimed are distinct (MPEP 806.05).

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 7-10 and 17-19 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 9.

Information Disclosure Statement

3. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate

paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Drawings

4. The corrected or substitute drawings were received on 14 December 1999.

These drawings are not acceptable.

5. The drawings are objected to because:

(a) in Fig. 4, "WAVELENGTH" should probably be --WAVELENGTH--;

(b) in Fig. 9, "50a" should probably be --50b-- (see Fig. 5); and

(c) in Figs. 13 and 14, "64" should probably be --22-- (see Fig. 3 and

37 CFR 1.84(p)(4)).

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

6. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5)

because they include the following reference sign(s) not mentioned in the description:

36 (Figs. 3, 12, and 16), 55 (Fig. 7), F_1 (Fig. 9), F_2 (Fig. 9), and 65 (Figs. 13 and 14). A

proposed drawing correction, corrected drawings, or amendment to the specification to

add the reference sign(s) in the description, are required in reply to the Office action to

avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

7. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5)

because they do not include the following reference sign(s) mentioned in the

description: 60c, 60d, 61c, and 61d (pg. 16); and 69 (pgs. 17 and 18). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

8. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

9. The abstract of the disclosure is objected to because of the length. Correction is required. See MPEP § 608.01(b).

10. The substitute specification filed 18 April 2000 has not been entered because it does not conform to 37 CFR 1.125(b) because: it lacks a marked up version of the substitute specification (however, it is noted that the remarks filed on 18 April 2000 state that a mark-up copy has been submitted).

11. The spacing of the lines of the specification is such as to make reading and entry of amendments difficult. New application papers with lines double spaced on good quality paper are required.

12. The disclosure is objected to because of the following informalities:

- (a) on pg. 3, "form" in the last line should probably be --from--;
- (b) on pg. 13, "transmits" in line 14 should probably be --reflects--;
- (c) on pg. 14, "row bar 20" in line 13 should probably be --row bar 2a--
(37 CFR 1.84(p)(5));
- (d) "lucus" (e.g., line 20 on pg. 15) should probably be --locus--;
- (e) on pg. 17, "phase difference 62" in lines 26-27 should probably be --phase
difference-- and "phase modulation element" in line 26 should probably be --phase
modulation element 62--;
- (f) on pg. 18, "DVD" in the first line should probably be --DUV--;
- (g) on pg. 18, "66a" in line 5 should probably be --65a-- (37 CFR 1.84(p)(5)); and
- (h) on pg. 18, "66b" in line 5 should probably be --65b-- (37 CFR 1.84(p)(5)).

Appropriate correction is required.

Claim Objections

13. Claims 1 and 11 are objected to because of the following informalities:

- (a) in claim 1, "abovementioned" on line 13 should probably be deleted;
- (b) in claim 1, "above-mentioned" on line 14 should probably be deleted; and
- (c) in claim 11, "an optical image" on lines 14-15 should probably be --said optical
image--.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

16. Claims 1-5, 11-15, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Valstyn (US 4,511,942) in view of Lackey (US 6,093,083) and Shafer *et al.* (US 5,717,518).

In regard to claims **11-15** and **20**, Valstyn discloses (Figs. 1 and 2) an apparatus for measuring geometrical information (e.g., spacing between layers 44 and 50; column 5, lines 8-14) during a lapping process by optical monitoring (column 5, lines 8-14) of the lapping process of a thin film magnetic head (14) and a resistance detector element (lapping guide 16, 18, 20, 22) for monitoring the lapping process, both of which are

formed on a substrate (12). The apparatus of Valstyn lacks that the thin film magnetic head is a magnetoresistance effect element and that the optical monitoring comprises a geometrical information detecting means for detecting geometrical information of the magnetoresistance effect element and the lapping guide from an image signal that has been photoelectrically converted by an image pick up means from an optical image of the substrate obtained by an imaging means, wherein the magnetoresistance effect element and the lapping guide are illuminated by an illuminating means with 300 nm (or less such as 248 nm, 266 nm, 213 nm, or 200 nm) illuminating light emitted from a light source. Lackey teaches (column 1, line 36 to column 4, line 24) that single inductive heads for both reading and writing are currently being supplanted by magnetoresistive heads for reading in order to achieve higher capacity and high volume production using techniques similar to semiconductor techniques. Shafer *et al.* teach (Figs. 4 and 6) a geometrical information detecting means (96) for detecting geometrical information from an image signal (94) that has been photoelectrically converted by an image pick up means (92) from an optical image of the substrate obtained by an imaging means (86, 90), wherein a substrate (*i.e.*, wafer 82) is illuminated by an illuminating means (63, 65, 67, 69) with 300 nm or less (*e.g.*, 200 nm to 400 nm; column 4, lines 10-34) illuminating light emitted from a light source (61) for an inspection apparatus having better optical resolution (column 3, lines 19-41). Shafer *et al.* also teach (column 9, lines 4-27; column 10, lines 10-26) that the inspection apparatus compares the measured data with stored data in order to obtain defect (*e.g.*, a difference in an element dimension from design specifications) and feature classification. Therefore it would have been obvious

to one having ordinary skill in the art to provide a magnetoresistance effect element as the thin film magnetic head in the apparatus of Valstyn and to provide a geometrical information detecting means for detecting geometrical information (e.g., dimensions different than design specifications) from an image signal that has been photoelectrically converted by an image pick up means from an optical image of the substrate obtained by an imaging means, wherein the substrate is illuminated by an illuminating means with 300 nm (or less such as 248 nm, 266 nm, 213 nm, or 200 nm) illuminating light emitted from a light source as the optical monitoring in the apparatus of Valstyn in order to inspect with better optical resolution so as to determine defects (e.g., dimensions different than design specifications) as taught by Shafer *et al.* in high capacity magnetoresistive reading heads.

In regard to claims **1-5**, the method steps are implicit for the modified apparatus of Valstyn since the structure is the same as the applicant's apparatus of claims 11-15.

17. Claims 6 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Valstyn (US 4,511,942) in view of Lackey (US 6,093,083) and Shafer *et al.* (US 5,717,518) as applied to claims 1 and 11 above, and further in view of Suzuki *et al.* (US 5,471,084).

In regard to claim **6** (which is dependent on claim 1) and claim **16** (which is dependent on claim 11), the modified apparatus of Valstyn lacks that the magnetoresistance effect element and the resistance detector element for monitoring the lapping are covered with end face protection films. Suzuki *et al.* teach that (column 1, lines 12-30) that magnetoresistance thin films are very active so that surface

protection films are need to prevent oxidization and damage. Therefore it would have been obvious to one having ordinary skill in the art to provide end face protection films for the magnetoresistance effect element and the resistance detector element in the modified apparatus of Valstyn in order to prevent oxidization and damage as taught by Suzuki *et al.*


Conclusion

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shun Lee whose telephone number is (703) 308-4860. The examiner can normally be reached on Tuesday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on (703) 308-4852. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

SL
February 3, 2003


CONSTANTINE MANNER
PRIMARY EXAMINER
GROUP ART UNIT 2878